

Keynotes

November-December 2001

Atlantic Oceanographic and Meteorological Laboratory

Volume 5, Number 11/12

Southern Ocean Bound

Researchers from AOML's Ocean Chemistry Division (OCD) have been involved in a flurry of after-hour activities in preparation for the upcoming Southern Ocean iron Fertilization EXperiment (SoFEX). SoFEX represents the largest endeavor to study the biological response of deliberately adding iron to the ocean. The six-week experiment begins in January 2002 and gathers together the collaborative effort of 70 scientists and three research vessels.

SoFEX will attempt to seed 200 square miles of the Southern Ocean with iron near 60°S and 170°W and then quantify the resulting bloom of algae and drawdown of carbon dioxide (CO₂). The late Dr. John Martin of Moss Landing Marine Laboratories developed the hypothesis that biological productivity and, therefore, atmospheric CO₂ sequestration by the ocean, is controlled in large parts of the ocean by trace levels of iron. His famous quote "give me an iron ore carrier and I'll give you an ice age" illustrates the potential of iron to regulate atmospheric CO₂ and its "greenhouse" warming effect.

Kevin Sullivan, a CIMAS research associate with OCD, will lead the field effort of tagging the iron with an inert tracer and then tracking the iron-fertilized patch. AOML's tracer effort is funded by the National Science Foundation in a joint proposal between OCD scientist Rik Wanninkhof and Professor Frank Millero of the University of Miami's Rosenstiel School of Marine and Atmospheric Science (RSMAS). A large container with 10,000 pounds of scientific equipment from the RSMAS and AOML groups is enroute to New Zealand.

Research Season a "Success" for Hurricane Scientists

One of the research goals of the 2001 hurricane season, which officially ended November 30th, was to fly into a well-developed Atlantic hurricane and, for the first time, measure it from top to bottom for two consecutive days. Scientists from AOML's Hurricane Research Division and their colleagues got their chance with Hurricane Humberto, which formed in the northwest Atlantic Ocean on September 21, 2001.

The season that seemed to be mercifully average for most U.S. citizens is causing excitement among federal, university, and military meteorologists due to the success of the Coordinated Observations of Vortex Evolution and Structure (COVES) project, a joint effort between NOAA, the National Aeronautics and Space Administration (NASA), the U.S. Air Force, and universities. COVES was also the highest priority of the 2001 U.S. Weather Research Program's Hurricanes at Landfall experiment. "The information we collected during this experiment is a gold mine of data for researchers and students to study for the next 15 to 20 years," said Hugh Willoughby, Director of the Hurricane Research Division.

"We now have information that sets the stage for a new generation of higher resolution models that are currently being developed. That translates into more specific forecasts needed to protect lives and property with a minimum of false alarms."

Scientists now distinguish Humberto as the most intensively-studied hurricane to date, with four times more data collected than in any previous storm. "What we have now is a substantial set of information on wind speed, pressure, precipitation, and other parameters describing a run-of-the-mill hurricane as it increased and then decreased in intensity in an environment with significant wind shear. It's nearly perfect," said Frank Marks, manager of NOAA's hurricane research field program. "We're looking forward to extracting nuggets of information from this gold mine and making the information widely available to the research community."

COVES required precise planning and extensive collaboration to coordinate the flight patterns of six aircraft flying at multiple levels into, around, and above Hurricane Humberto over a two-day period. NASA flew two research planes at 65,000 and 37,000 feet. NOAA's two WP-3D turboprop aircraft flew between 6,000 and 13,000 (continued on page 2)



Hurricane Humberto, churning in the northwest Atlantic on September 23, 2001, bears the distinction of having become the best studied hurricane to date.



Lautenbacher Confirmed as NOAA Administrator

Retired Navy Vice Admiral Conrad Lautenbacher, Jr. was confirmed by the Senate on November 30, 2001 as the new NOAA Administrator and Under Secretary of Commerce for Oceans and Atmosphere. Prior to his confirmation, Lautenbacher served as president of the Consortium for Oceanographic Research and Education (CORE) in Washington, D.C. Vice Admiral Lautenbacher is a native of Philadelphia, Pennsylvania and a 1964 graduate of the U.S. Naval Academy. He received M.S. and Ph.D. degrees in applied mathematics from Harvard University.

2001 Hurricane Season Ends

The six-month long Atlantic hurricane season drew to an end on November 30th, living up to predictions by NOAA forecasters as a year marked by above average storm activity. The season began slowly but nevertheless produced 15 named storms, nine of which became hurricanes, four of which were classified as major with winds greater than 110 mph.

For the second consecutive year, the United States skirted impact from a land-falling hurricane but still managed to experience the damaging effects of tropical weather due to three tropical storms—Allison, Barry, and Gabrielle—that came ashore along the Gulf coast. Tropical Storm Allison's torrential rains and flooding resulted in at least 24 deaths and \$5 billion in damages, making it the costliest tropical storm to affect the U.S. to date. Tropical storms Barry and Gabrielle struck the U.S. with winds just below hurricane force. Researchers expect the trend towards increased levels of storm activity that began in 1995 to continue.

THANK YOU!

THANKS TO ALL WHO PARTICIPATED IN THE 2001 COMBINED FEDERAL CAMPAIGN. DUE TO YOUR GENEROSITY, AOML RAISED \$21,585 IN SUPPORT OF CHARITABLE AGENCIES AND ORGANIZATIONS.

(Continued from page 1)

feet, while its Gulfstream-IV jet flew at an altitude of 45,000 feet. The U.S. Air Force's two weather reconnaissance C-130 aircraft flew at a steady altitude of 10,000 feet.

Collectively, the planes dropped 395 probes into the hurricane and the ocean below, including a newly-redesigned dropwindsonde, used to measure wind, temperature, and moisture. Other instruments on board the planes, such as the remote sensing equipment that can measure wave height and wind speed at the ocean surface—factors that damage and erode shorelines, also collected a wealth of information. Doppler radars allowed scientists to peer into the core of the hurricane and provided three-dimensional maps of wind and rainfall.

A new instrument installed this season measured the microscopic particles of dust and other aerosols suspended in the air around the hurricane. Meteorologists are interested in how hurricanes pick up and disperse African dust across the Atlantic, and atmospheric chemists are studying the distribution of ozone from the stratosphere to the ocean surface.

Official NOAA press release of November 26, 2001. Contact Erica Van Coverden (Erica.Van.Coverden@noaa.gov or 305-361-4541).

Gudes Accompanies Researchers on Reconnaissance Flight

Acting NOAA Administrator Scott Gudes had the unique opportunity of being a guest aboard one of NOAA's WP-3D aircraft for a reconnaissance mission into Hurricane Michelle.

Said Gudes of his experience, "Michelle was a mean category 4 hurricane but, fortunately, she veered to the northeast and missed Florida and the U.S. mainland. However, I will always remember this storm for a different reason. On Saturday evening, November 3, I had the opportunity to accompany the crew of one of our P-3 hurricane hunter aircraft as it flew through the hurricane eyewall and eye five times. During this nine-hour mission, I learned a lot about the dedication of our Office of Marine and Aviation Operations crews and Hurricane Research Division researchers. I spent most of the trip strapped in, sitting behind Captain Dave Tennesen and watching my radar and graphic displays. Every now and then, I got up and watched specialists like Jim DeGranrut, Sim Abernethy, and Peter Black launch dropsondes and XBTs (expendable bathythermographs) or monitor a microwave radiometer that measures sea surface foam and derives wind speeds. Our aircraft provided highly critical measurements to the National Hurricane Center and National Center for Environmental Prediction at a time in which Hurricane Michelle started to pick up speed and move to the northeast. The forecasts for Michelle were outstanding, and the track forecast error at 72 hours was less than half the average. It was a fantastic experience which I will never forget."



Hurricane Research Division meteorologist Peter Black and Acting NOAA Administrator Scott Gudes aboard one of NOAA's WP-3D aircraft during a reconnaissance mission into Hurricane Michelle.

Open Season

Federal Health Benefits Program
(November 12-December 10, 2001)

<http://www.opm.gov/insure/health/index.htm>

Thrift Savings Program
(November 15, 2001-January 31, 2002)

<http://www.tsp.gov>

Congratulations

Howard Friedman, Deputy Director of the Hurricane Research Division, received an award from NOAA's Equal Employment Opportunity (EEO) Council on November 9, 2001 in special recognition and appreciation for his service as a charter member of the first NOAA Equal Employment Opportunity Council. Mr. Friedman has served as a member of the EEO Council since 1998.

Holiday Happenings

Door Decorating Contest December 5

Decorate your door with a
holiday theme

*(Gifts and goodies have been
known to help judges
determine the winners)*

Prizes for the best doors
will be awarded at the
AOML Holiday Party
on December 7



Tree Trimming and Lobby Decorating/ Holiday Cookie Contest December 6

Join coworkers in the lobby
between 10:00 a.m. and noon
to help decorate AOML for
the holidays and trim the tree

Bake a batch of your
favorite holiday cookies for
the judges to sample



AOML Holiday Party December 7

1 p.m. in the lobby
(see next page for details)

AOML Shines at NOAA Tech 2002 Conference

Staff members from AOML's Hurricane Research Division won two awards at the NOAA Tech 2002 Conference in Silver Spring, Maryland this past October 23-25, 2001. The conference highlighted NOAA's achievements in high-end computing, network, and web technologies.

Frank Marks, a research meteorologist, won the "Best Wireless Application" award for his presentation of a wireless local area network (WLAN). WLAN transmits high resolution reconnaissance aircraft data to ground-based researchers and forecasters in near-real time. The system uses a single-channel satellite communications transceiver (INMARSAT Mini-M), as well as air and ground-based network servers. Unlike any system currently used by NOAA, this configuration allows for high-bandwidth, near-real time two-way communications between in-flight aircraft anywhere between 70°N to 70°S and operational bases around the world. From an operation's base, high-resolution data may be disseminated to users via the Internet. As a prototype, this system demonstrates global networking technologies that will enable NOAA to capitalize upon evolving communication services. WLAN has great potential for NOAA researchers and forecasters investigating rapidly developing systems such as hurricanes and winter storms. Additional information can be found at ftp://ftp.aoml.noaa.gov/hrd/pub/marks/Marks_NT2002.ppt.

Sonia Otero, Nirva Morisseau-Leroy, and Nicholas Carrasco, a team of computer specialists, won the "Best Technology Transfer to Operations" award for their presentation of Project H*WIND, a Java application for global tropical cyclone monitoring and wind analysis. Project H*WIND assimilates and synthesizes a wide array of surface weather observations (from ships, buoys, satellites, coastal platforms, surface aviation reports, and reconnaissance aircraft data) into a consistent wind field, available to researchers in near-real time. The National Hurricane Center has rated Project H*WIND as their top priority for becoming operational by the 2003 hurricane season. The goal is for it to become a Web application for maximum scalability and availability to all weather agencies. For more information about Project H*WIND, visit the Hurricane Research Division's wind analysis web page (http://www.aoml.noaa.gov/hrd/Storm_pages/wind.html).

Congratulations to Frank Marks, Sonia Otero, Nirva Morisseau-Leroy, and Nicholas Carrasco for their outstanding achievements at the NOAA Tech 2002 Conference.



Costume-clad staff members gathered in celebration of AOML's annual Octoberween party on October 30, 2001. Deputy Director Judy Gray served as judge of the motley assemblage, selecting Greg Banes (Basketball Jones), Ulises Rivero (Hootersville High cheerleader), and Jack Stamates (the Grim Reaper) as the top three contestants. Pictured in all their splendor are (from left to right): Jack Stamates, Neil Dorst, Ulises Rivero, Paul Dammann, Erica Van Coverden, Jules Craynock, Noel Charles, Molly Baringer, and Greg Banes. Missing from the photo are Shailer Cummings and Kevin Sullivan (mad scientists) and Roberta Lusic as Ms. Dracula.

Travel

Howard Friedman attended a meeting of the NOAA Equal Employment Opportunity Council in Silver Spring, Maryland on November 8-9, 2001.

Christopher Landsea attended a workshop about the Northwest Pacific Typhoon Re-Analysis Project and presented two seminars at the University of Hawaii in Honolulu, Hawaii on November 26-29, 2001.

Erica Van Coverden and Sandra Taylor attended the Department of Commerce's 2001 Conference "Building Tomorrow's Workplace" in Boulder, Colorado on November 26-30, 2001.

Peter Black, Jason Dunion, and Robert Rogers attended a meeting about the West African Monsoon Experiment in Boulder, Colorado on November 27-30, 2001.

Kristina Katsaros attended a meeting of the Third Partnership for Observations of the Global Ocean (POGO) in Nova Scotia, Canada on November 27-December 2, 2001.

Jack Stamates attended the 14th Biennial Conference on the Biology of Marine Mammals in Vancouver, Canada on November 28-December 3, 2001.

Sim Aberson attended a meeting of the NOAA Diversity Council in Silver Spring, Maryland on November 29-30, 2001.

Nirva Morisseau-Leroy attended the Oracle OpenWorld Conference in San Francisco, California on December 1-7, 2001.

David Palmer, John Proni, and Jack Stamates attended the 142nd Meeting of the Acoustical Society of America in Ft. Lauderdale, Florida on December 3-7, 2001.

Robert Kohler attended a meeting of the Technical Committee on Computer Resources in Boulder, Colorado on December 3-7, 2001.

Robert Molinari attended a meeting of the U.S. ARGO Science Team in Washington, D.C. on December 5-7, 2001.

Thomas Carsey, David Enfield, Gustavo Gofii, and Christopher Landsea will attend the 2001 Fall Meeting of the American Geophysical Union in San Francisco, California on December 10-14, 2001.



Holiday Party



December 7



1:00 p.m., AOML Lobby

\$5.00 per person*

(*purchase tickets from Alejandra Lorenzo before or on December 6)



Raffle Drawing with Door Prizes!



Bring a Side Dish
or Dessert to Share



Turkey, Ham, Smoked Salmon,
Stuffing, and Drinks Provided



Contact Erica Van Coverden for more information
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Keynotes is published bi-monthly by the Atlantic Oceanographic and Meteorological Laboratory. Contributions and/or comments are welcome and may be submitted via email (Gail.Derr@noaa.gov), fax (305) 361-4449, or mailing address: NOAA/AOML, *Keynotes*, 4301 Rickenbacker Causeway, Miami, FL 33149.

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